

AL.2.2008-201
C.12 V.11

University of Alberta Library

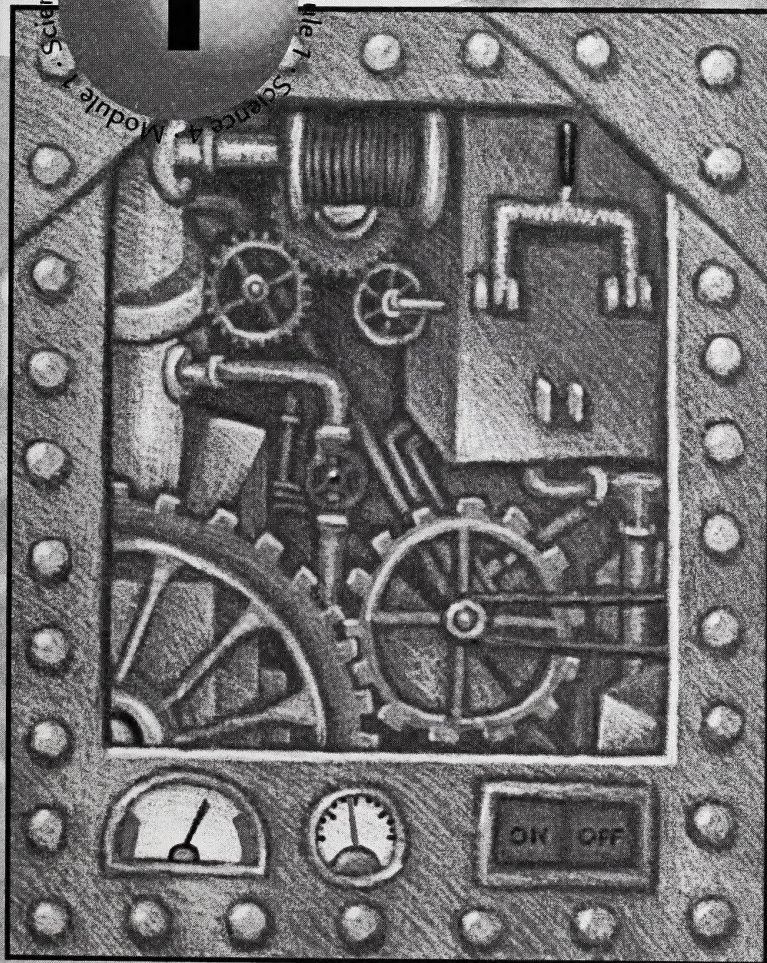


0 1620 3502999 8

Science 4

Wheels, Gears, and Levers
Home Instructor's Guide and
Assignment Booklet 1B

Science 4 • Module 1 • Science 4 • Module 1
1
Science 4 • Module 1 • Science 4 • Module 1



Alberta
EDUCATION



Learning
Technologies
Branch

Science 4
Module 1: Wheels, Gears, and Levers
Home Instructor's Guide and Assignment Booklet 1B
Learning Technologies Branch
ISBN 0-7741-2836-4

Cover Art: Art Parts/Ron and Joe, Inc (www.ronandjoe.com). Used by permission.

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Home Instructor's Guide and Assignment Booklet.

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



You may find the following Internet sites useful:

- Alberta Education, <http://www.education.gov.ab.ca>
- Learning Technologies Branch, <http://www.education.gov.ab.ca/lrb>
- Learning Resources Centre, <http://www.lrc.education.gov.ab.ca>

Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

Copyright © 2006, Alberta Education. This resource is owned by the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, 10155 – 102 Street, Edmonton, Alberta, Canada T5J 4L5. All rights reserved.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Education. This courseware was developed by or for Alberta Education. Third-party content has been identified by a © symbol and/or a credit to the source. Every effort has been made to acknowledge the original source and to comply with Canadian copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Education so corrective action can be taken.

THIS COURSEWARE IS NOT SUBJECT TO THE TERMS OF A LICENCE FROM A COLLECTIVE OR LICENSING BODY, SUCH AS ACCESS COPYRIGHT.

Table of Contents

Module 1: Wheels, Gears, and Levers

Notes to the Home Instructor	4
Section 2: Levers	5
Overview	5
Assessment and Feedback	5
Websites Mentioned in Module 1: Section 2	5
Additional Required Materials	5

Lesson Summaries

Lesson 5: Lifting with Levers	6
Lesson 6: Types of Levers	7
Lesson 7: A Medieval Lever	8
Lesson 8: Simple Machines Around You	9

Section 3: Drive Systems	9
Overview	9
Assessment and Feedback	9
Websites Mentioned in Module 1: Section 3	10
Additional Required Materials	10

Lesson Summaries

Lesson 9: Gears	11
Lesson 10: Gear Up for Life!	12

Module 1: Wheels, Gears, and Levers

Notes to the Home Instructor

This booklet contains the following components for you and your student:

1. Home Instructor's Guide

These are notes for you. First, there is an overview, a listing of suggested websites, and a listing of additional required materials needed for the section. Then, there is an overview of the content, activities, learning outcomes, and special requirements of each lesson in the section.

Note: To ensure that you have all of the materials on hand for your student to complete the activities for each module, read through the list of materials required for the lessons. They are boxed for easy reference, as shown in the following example.

Activity 1: Lifting Loads

- a 30-cm ruler
- a metre-stick (or similar length stick)
- a fat felt pen or similar object to use as a fulcrum
- 3 books of different weights (light, medium, heavy)

2. Assignment Record Form

This is a form to send in with the assignments. Remember to paste the address label provided by your school on it. The teacher will keep track of your student's assignments, record your student's grades, and include his or her comments using this form.

3. Assignment

Your student should answer all questions in complete sentences where possible. Questions set up as lists, tables, charts, or graphs do not need sentence answers. Send the assignment to the teacher as soon as the booklet has been completed.

4. Home Instructor Feedback Form and Student Feedback Form

You and your student should complete these forms. Send them in at the same time as the assignment. They provide us with helpful information about what we are doing right and what needs to be changed.

5. Checklist

The checklist helps you confirm that all of the required components have been collected prior to submitting the completed work to the teacher. For students completing this module electronically, this checklist also includes spaces to indicate the method of submitting graphs, drawings, or photos of assignment work where required.

Section 2: Levers

Overview

In Section 1, your student explored three simple machines: the inclined plane, the wheel and axle, and the pulley. In this section, your student will be studying another simple machine—a lever. You can continue to use the same resources indicated in Section 1 to find information about levers. You may want to encourage your student to collect pictures of levers.

Assessment and Feedback

The feedback you and your student provide in the feedback forms will assist the teacher in assessing your student's progress.

The Section 2 Assignment is worth 36 marks out of a total 92 marks for this module.

Websites Mentioned in Module 1: Section 2

It is recommended that you check these websites prior to your student beginning work on this section.

Lesson 5

- levers
<http://www.sunshine.chpc.utah.edu/javalabs/java12/machine/act1/lab2.htm>

Lesson 7

- trebuchets
 - <http://www.wonderville.ca/v1/activities/levers/levers.html>
 - <http://www.sciq.ca/>
 - <http://www.pbs.org/wgbh/nova/lostempires/trebuchet/>

Lesson 8

- Leonardo da Vinci
<http://www.mos.org/leonardo/>
- simple machine review
<http://www.edheads.org/activities/simple-machines/index.htm>

Additional Required Materials

Activity 5: Lifting Loads

- a 30-cm ruler
- a metre-stick (or similar length stick)
- a fat felt pen or similar object to use as a fulcrum
- 3 books of different weights (light, medium, heavy)

Activity 6: Moving Fulcrums

- a 30-cm ruler
- a heavy book
- a fat felt pen or similar object to use as a fulcrum

Activity 7: How Far Does It Go?

- a ruler, or similar flat piece of wood, for the arm (about 30 cm long)
- a base (a triangular piece of wood, building blocks, CD cases taped together, or anything else that allows the wood arm to move freely) Be sure the base is taller than the short arm to allow full movement.
- two small, light-weight, open boxes (one for the weights; one for the projectiles)
- a variety of projectiles (for example, coins, paper clips) Do not use sharp or breakable items.
- rubber bands or tape
- a variety of weights (for example, coins, marbles)
- a second ruler, metre-stick, or tape measure
- a kitchen scale (optional, but recommended)

If you don't have a scale, here are the masses of Canadian coins. You can use them for comparison.

– dime	1.75 g	– quarter	4.4 g
– penny	2.35 g	– loonie	7.0 g
– nickel	3.95 g	– toonie	7.3 g

Activity 8: Making Work Easy

No extra materials are required for this activity.

Lesson Summaries

Lesson 5: Lifting with Levers

Summary

In this lesson, your student studies levers. A lever is a simple machine that changes the amount of force required to move an object. Levers consist of a fulcrum (a fixed point) and a bar that is free to rotate around the fixed point. The end of the bar carrying the load is the load arm, and the end where the effort is applied is the effort arm. Ensure that your student clearly understands the terms *load*, *effort*, and *fulcrum*.

Your student uses levers all the time, although he or she may be unaware of it. For example, scissors, wheelbarrows, hockey sticks, and even certain joints in the body are levers. Encourage your student to lift a book using a lever as described in the lesson.

Encourage your student to look for a variety of levers around home or school (for example, a crowbar, nutcracker, bottle opener, or baseball bat). As well, you may want to work with your student to demonstrate the different types of levers. Vary the position of the fulcrum, effort, and load in different ways to see how it affects the ability to use the lever. Your student explores levers and how the amount of effort required changes with the load in Activity 5: Lifting Loads.

Learning Outcomes

It is expected that your student will

- compare moving an object with and without using a lever
- be able to identify the fulcrum, effort, and load

Additional Required Materials

Activity 5: Lifting Loads

- a 30-cm ruler
- a metre-stick (or similar length stick)
- a fat felt pen or similar object to use as a fulcrum
- 3 books of different weights (light, medium, heavy)

Lesson 6: Types of Levers

Summary

In this lesson, your student explores the different classes of levers: Class One, Two, and Three levers. Suggest that your student use a ruler, a pen, and some sort of weight (the load) to manipulate the fulcrum and the load to represent the different classes of levers. A way to help your student remember the position of the fulcrum in relation to the load and effort is to use the letters “FLE.” In a Class One lever, the fulcrum (F) is between the load and the effort (LFE). In a Class Two lever, the load is between the effort and the fulcrum (ELF). In a Class Three lever, the effort is between the fulcrum and the load (FEL).

In Activity 6: Moving Fulcrums, your student experiments with the distance between the load and the fulcrum and makes conclusions about the activity. Your student also discovers which type of lever gives a speed advantage (Class Three). A lot of force is required, but it results in the load being moved very quickly. This explains why hockey sticks and baseball bats (both Class Three levers) can make objects move so quickly.

Learning Outcomes

It is expected that your student will

- understand the differences between Class One, Two, and Three levers
- estimate the amount of force needed to lift books of different weights

Additional Required Materials

Activity 6: Moving Fulcrums

- a 30-cm ruler
- a heavy book
- a fat felt pen or similar object to use as a fulcrum

Lesson 7: A Medieval Lever

Summary

In this lesson, your student will read about an ancient weapon—a trebuchet. This type of machine shows how you can apply a small force to produce a large force, and apply a small movement to create a large movement. When dropping a short arm of a trebuchet with a weight attached, the long arm travels upward with great speed. This is due to the distance the long arm has to travel, compared to the distance the short arm travels. This increases the velocity of the projectile balanced on the end of the long arm. If a sling is attached to the long arm carrying the projectile, the velocity is even greater.

The Internet sites listed for this project show diagrams and give demonstrations on how these machines work. They also have an interactive activity for your student to try. If you are able to access the sites, they will be valuable for your student.

Learning Outcomes

It is expected that your student will

- demonstrate ways to use a lever that applies a small force to create a larger force
- demonstrate ways to use a lever that applies a small movement to create a large movement

Additional Required Materials

Activity 7: How Far Does It Go?

- a ruler, or similar flat piece of wood, for the arm (about 30 cm long)
- a base (a triangular piece of wood, building blocks, CD cases taped together, or anything else that allows the wood arm to move freely) Be sure the base is taller than the short arm to allow full movement.
- two small, light-weight, open boxes (one for the weights; one for the projectiles)
- a variety of projectiles (for example, coins, paper clips) Do not use sharp or breakable items.
- rubber bands or tape
- a variety of weights (for example, coins, marbles)
- a second ruler, metre-stick, or tape measure
- a kitchen scale (optional, but recommended)

If you don't have a scale, here are the masses of Canadian coins. You can use them for comparison.

– dime	1.75 g	– quarter	4.4 g
– penny	2.35 g	– loonie	7.0 g
– nickel	3.95 g	– toonie	7.3 g

Lesson 8: Simple Machines Around You

Summary

In this lesson, your student is asked to identify the simple machines around him or her. For example, a staircase is a type of inclined plane, and a spiral staircase is a winding inclined plane. In Activity 8: Making Work Easy, your student is asked to classify common objects as simple machines.

The Internet link included in this lesson invites students to visit The Museum of Science's Leonardo da Vinci's Workshop and the Inventor's Toolbox. After visiting this site, your student should be clear that even the most complex inventions are a combination of simple machines.

In the assignment, your student will be asked to identify the simple machines that make up a bicycle. If possible, allow him or her to examine an actual bicycle while completing this assignment.

Learning Outcomes

It is expected that your student will be able to

- describe ways in which simple machines have been used to develop items that make our lives easier

Additional Required Materials

Activity 8: Making Work Easy

No extra materials are required for this activity.

Section 3: Drive Systems

Overview

In this section, your student will study drive systems, and how they transfer motion from one shaft to a second shaft, in a parallel motion, or a 90° motion. Your student may become aware of changes in speed and direction that result from different ways of linking components. Introducing gear ratios, however, is not recommended at this grade level.

There are several websites that may give you ideas for more activities, if your student is particularly keen. You may want to start at the website for the Science Alberta Foundation at <http://www.saf.ab.ca>. Go to "Kids Korner" to connect to some of the better sites. The site How Stuff Works at <http://www.howstuffworks.com> is a site that students often enjoy. It may prove challenging for some students to read, but there are many examples of machines and how they work at this site.

Assessment and Feedback

The feedback you and your student provide in the feedback forms will assist the teacher in assessing your student's progress.

The Section 3 Assignment is worth 20 marks out of a total 92 marks for this module.

Websites Mentioned in Module 1: Section 3

It is recommended that you check these websites prior to your student beginning work on this section.

Lesson 9

- Wikipedia's article on a rack railway
http://www.wikipedia.org/wiki/Cog_railway
- The Transport Group
<http://www.transportgroup.freemove.co.uk/images/MFIOweb.jpg>

Additional Required Materials

Activity 9: Drive Systems

- 4 wheels (wheels from LEGO®, MECCANO, K'NEX, or DUPLO® construction sets; spools from thread; empty camera film canisters with holes drilled into both ends; or sewing machine bobbins)

Choose 2 wheels of the same size, 1 larger wheel, and 1 smaller wheel.

- 3 elastic bands
- 4 knitting needles or skewers

The knitting needles or skewers must be small enough to fit into the axle holes in the wheels and long enough to go through the box and extend past both sides.

- a small empty box (such as a box from macaroni and cheese)
- sticky tape or masking tape
- modelling clay (optional)
- a pencil or felt marker (You will be marking the wheels.)
- a ruler

Activity 10: Hide-and-Seek Gears

- a variety of household items that use gears

Optional Follow-up Activities

Activity 1: Balancing a Teeter-Totter

- 3 pennies
- a 30-cm ruler
- a cardboard triangular block

Activity 2: Making a Lever Scale

- some coins
- a hexagonal pencil
- a ruler
- various small objects to weigh
- a felt pen

Lesson Summaries

Lesson 9: Gears

Summary

In this lesson, your student will explore pulleys and gears, and how they combine to create drive systems. Your student will discover the direction that pulleys and gears will move, the speed at which they move, and how they can transfer movement from one object to the next.

In Activity 9, your student will create simple pulley systems and perform tests to reinforce the text material. The student will discover that larger wheels move more slowly than smaller ones, and that the way the pulley rope is looped around the wheels affects the direction the wheels turn.

Learning Outcomes

It is expected that your student will be able to

- describe how pulleys and gears move in relation to one another
- identify examples of pulleys and gears in their surroundings

Additional Required Materials

Activity 9: Drive Systems

- 4 wheels (wheels from LEGO®, MECCANO, K'NEX, or DUPLO® construction sets; spools from thread; empty camera film canisters with holes drilled into both ends; or sewing machine bobbins)

Choose 2 wheels of the same size, 1 larger wheel, and 1 smaller wheel.

- 3 elastic bands
- 4 knitting needles or skewers (The knitting needles or skewers must be small enough to fit into the axle holes in the wheels and long enough to go through the box and extend past both sides.)
- a small empty box (such as a box from macaroni and cheese)
- sticky tape or masking tape
- modelling clay (optional)
- a pencil or felt marker (You will be marking the wheels.)
- a ruler

Lesson 10: Gear Up for Life!

Summary

In this lesson, your student will explore his or her own environment for gears in everyday items. Some places you may find gears are in clocks, watches, hand-cranking items such as eggbeaters and pencil sharpeners, windshield wipers, inside VCRs and tape recorders, drills, and some toys. If you have the chance to visit a flea market or some garage sales, you may be able to purchase inexpensive items that can be taken apart for your student to see the inner workings.

WARNING: Opening electrical devices can expose you to dangerous shocks.

Learning Outcomes

It is expected that your student will

- explain the operation of a drive system that transfers motion from one shaft or axle to a second shaft where the second shaft is
 - parallel to the first
 - at a 90° angle to the first
- learn the functions that these gears can perform, and identify sample applications

Additional Required Materials

Activity 10: Hide-and-Seek Gears

- a variety of household items that use gears

ASSIGNMENT BOOKLET 1B

Science 4

Module 1: Section 2 Assignment and Section 3 Assignment

Home Instructor's Comments and Questions

Home Instructor's Signature

FOR HOME INSTRUCTOR USE (if label is missing or incorrect)

Student File Number:

Date Submitted:

Apply Module Label Here

Name

Address

Postal Code

*Please verify that preprinted label is for
correct course and module.*

FOR SCHOOL USE ONLY

Assigned Teacher:

Date Assignment Received:

Grading:

Additional Information:

Teacher's Comments

Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

INSTRUCTIONS FOR SUBMITTING THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you are registered for distance learning courses, you are expected to regularly submit completed assignments for correction. Try to submit each Assignment Booklet as soon as you complete it. Do not submit more than one Assignment Booklet in one subject at the same time. Before submitting your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to ensure accuracy in spelling and details?
- Is the booklet cover filled out and the correct module label attached?

MAILING

1. Do **not** enclose letters with your Assignment Booklets. **Send all letters in a separate envelope.**
2. Put your Assignment Booklet in an envelope and take it to the post office and have it weighed. Attach **sufficient postage** and seal the envelope.

FAXING

1. Assignment Booklets may be faxed to the school with which you are registered. Contact your teacher for the appropriate fax number.
2. All faxing costs are the responsibility of the sender.

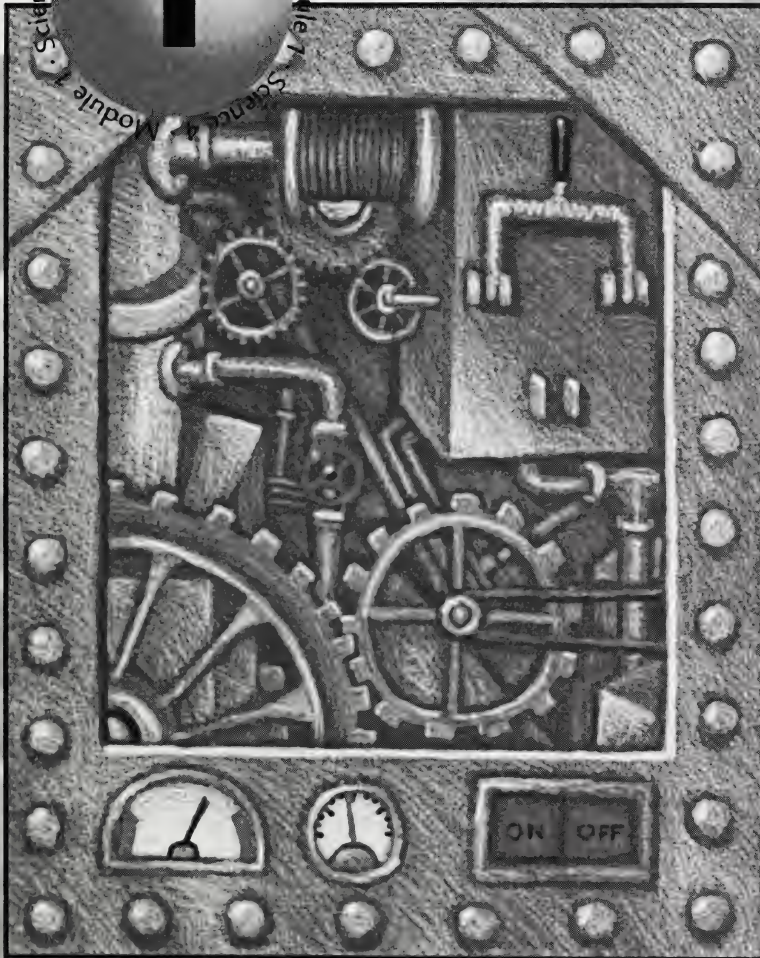
E-MAILING

It may be possible to e-mail your completed Assignment Booklet to the school with which you are registered. You also may be **required** to e-mail some of your assignments. Contact your teacher for the appropriate e-mail address.

Science 4

Wheels, Gears, and Levers Assignment Booklet 1B

Science 4 • Module 1 • Science 4 • Module 1
1



Alberta
EDUCATION



Learning
Technologies
Branch

FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 5 Assignment	5	
Lesson 6 Assignment	16	
Lesson 7 Assignment	7	
Lesson 8 Assignment	8	
Lesson 9 Assignment	10	
Lesson 10 Assignment	10	
	56	

Teacher's Comments

Science 4
Module 1: Wheels, Gears, and Levers
Assignment Booklet 1B
Learning Technologies Branch

The Learning Technologies Branch acknowledges with appreciation the Alberta Distance Learning Centre and Pembina Hills Regional Division No. 7 for their review of this Assignment Booklet.

Cover Art: Art Parts/Ron and Joe, Inc (www.ronandjoe.com). Used by permission.

Page 2: *wheelbarrow, scissors* © 2005–2006 www.clipart.com; **Page 4:** Photodisc/Getty Images

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



You may find the following Internet sites useful:

- Alberta Education, <http://www.education.gov.ab.ca>
- Learning Technologies Branch, <http://www.education.gov.ab.ca/lrb>
- Learning Resources Centre, <http://www.lrc.education.gov.ab.ca>

Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

Copyright © 2006, Alberta Education. This resource is owned by the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, 10155 – 102 Street, Edmonton, Alberta, Canada T5J 4L5. All rights reserved.

This courseware was developed by or for Alberta Education. Third-party content has been identified by a © symbol and/or a credit to the source and must be used as is. This courseware may be reproduced in any form, including photocopying, without the written permission of Alberta Education. Changes can be made only to content owned by Alberta Education. For more detailed information, refer to the Terms of Use Agreement. Every effort has been made to acknowledge the original source and to comply with Canadian copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Education so corrective action can be taken.

THIS COURSEWARE IS NOT SUBJECT TO THE TERMS OF A LICENCE FROM A COLLECTIVE OR LICENSING BODY, SUCH AS ACCESS COPYRIGHT.

ASSIGNMENT BOOKLET 1B

SCIENCE 4: MODULE 1

SECTION 2 ASSIGNMENT AND SECTION 3 ASSIGNMENT

This Assignment Booklet is worth 56 marks out of the total 92 marks for the assignments in Module 1. The value of each assignment and each question is stated in the left margin.

Read all parts of your assignment carefully and record your answers in the appropriate places. If you have difficulty with an assignment, go back to your Student Module Booklet and review the appropriate lesson. Be sure to proofread your answers carefully before submitting your Assignment Booklet.

Note: If you are using electronic assignments, you will need to do the following:

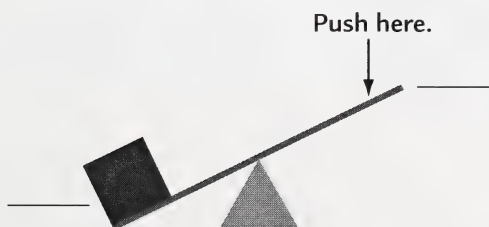
- You need to print the pages that ask you to make a drawing. You will find them in your PDF file.
- You will need to mail your drawings to your teacher.

36

3

Section 2 Assignment: Levers

5. a. Label the fulcrum (F), load (L), and effort (E) on the following lever.



Your teacher will look for

- correctly placed letters (1 mark each)

2

b. What is the benefit of using a lever?

Your teacher will look for

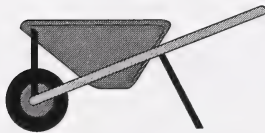
- a clear explanation of the benefit (1 mark)
- complete sentences (1 mark)



When you are ready, turn to Lesson 6 in your Student Module Booklet.

12

6. a. Label the fulcrum (F), load (L), and effort (E) on each diagram of the following lever machines. Identify which class of lever each machine is.



A wheelbarrow is a
Class _____ lever.



Scissors are a
Class _____ lever.



A broom is a
Class _____ lever.

Your teacher will look for

- correctly placed letters (1 mark each)
- correct class of lever for each machine (1 mark each)

4

b. Several levers are listed below. What class of lever is each one?

- For each Class One lever, write a 1 on the blank.
- For each Class Two lever, write a 2 on the blank.
- For each Class Three lever, write a 3 on the blank.

_____ bottle opener

_____ baseball bat

_____ a screwdriver used to pry the lid off a paint can

_____ the hinged lid of a jewellery box

Your teacher will look for

- correct class of lever for each machine (1 mark each)



When you are ready, turn to Lesson 7 in your Student Module Booklet.

7

7. Think about the trebuchet you built. You likely changed the lengths of the arms and the masses of the force and projectile.

Explain how each change affected the distance the projectile flew.
Explain in detail.

a. the lengths of the arms

b. the mass of the force

c. the mass of the projectile

Your teacher will look for

- complete explanations for each change (2 marks each)
- complete sentences (1 mark)



When you are ready, turn to Lesson 8 in your Student Module Booklet.

8

8. Look at the picture of the bicycle. Name the simple machines on this bicycle. Tell what each simple machine does. Put your answers in the chart on the following page. The first one has been done for you. There may be more than one example of each of the simple machines. You need to name only one part for each type of simple machine.



Type of Simple Machine	Name of Bicycle Part	What does it do?
wedge	sprockets (teeth) on gear wheels	They keep the chain in place and moving.
lever		
screw		
wheel and axle		
pulley		

Your teacher will look for

- correct name of bicycle part (1 mark each)
- correct explanation of what the part does (1 mark each)



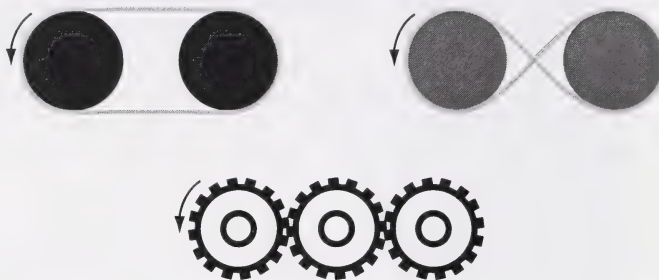
When you are ready, turn to Lesson 9 in your Student Module Booklet.

20

4

Section 3 Assignment: Drive Systems

9. a. Look at the drive systems below. The left-hand wheel or gear turns in the direction the arrow shows. Draw arrows to show the way that the other wheels or gears will turn.

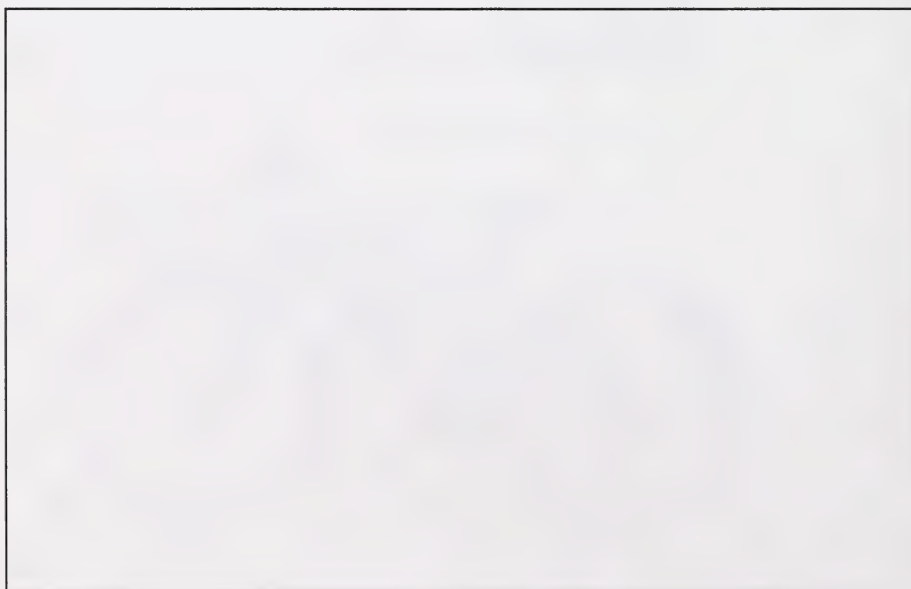


Your teacher will look for

- correct direction of arrows (1 mark each)

6

- b. Design a pulley system with three wheels and two elastics. Make two of the wheels turn in the same direction. Have the other wheel turn in a different direction. Draw your system below. Show the wheels, elastics, and direction of movement. Use a different colour to show each elastic.



Your teacher will look for

- a neatly drawn diagram (1 mark)
- correctly placed elastics (2 marks)
- arrows showing the correct direction of rotation (3 marks)



When you are ready, turn to Lesson 10 in your Student Module Booklet.

10. You have made two statues that you want to put on display. You want them to rotate. You want people to see all sides of the statues. You have these items:

- some gears
- a crank to turn one gear
- some platforms to stand the statues on

3

- a. Decide how you want the statues to rotate. Should they rotate in the same direction or opposite directions? Should one move faster than the other? Describe how you want the statues to move.

Your teacher will look for

- a clear description of how you want your statues to move (2 marks)
- complete sentences (1 mark)

- 7 b. Draw the design you described in question 10.a. Use arrows to show the direction the gears and platforms rotate or turn. (You do not have to draw the statues.)

Your teacher will look for

- a neatly drawn diagram (3 marks)
- arrows correctly showing the direction the gears and platforms rotate, based on the description you gave in question 10.a. (4 marks)



Now return to your Student Module Booklet and read the summaries and the Optional Follow-up Activities.

Home Instructor Feedback Form

Module 1: Section 2 and Section 3

Answer the following questions and mail them in with the completed assignment for this section.

1. Did your student have any difficulty with these sections? If so, which parts were difficult?

2. Approximately how many of the lessons in these sections was your student able to complete within the 45- to 60-minute time frame?

3. Was your student able to easily find the materials for the activities? Indicate any materials that were not readily available.

Please add any questions or comments you may have.

Student Feedback Form

Module 1: Section 2 and Section 3

Answer the following questions and mail them in with the completed assignment for this part. This is not a test and there are no marks assigned.

1. What was the most difficult part of Section 2 and Section 3?

2. Which simple machine did you find most interesting? Why?

3. Were the references to Internet sites useful to you?

Checklist for Module 1: Assignment Booklet 1B

Make sure you send in all of the following items:

- ☐ Assignment Record Form
- ☐ Assignment Booklet 1B, questions 5-10
- ☐ Home Instructor Feedback Form
- ☐ Student Feedback Form
- ☐ Optional Follow-up Activity (optional)

If you are completing your assignments electronically, advise your teacher how you are submitting the following:

Question 5.a.: _____

Question 6.a.: _____

Question 9.a.: _____

Question 9.b.: _____

Question 10.b.: _____